

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/008205

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06T7/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G06T A618

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	-/---	



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

10 October 2005

Date of mailing of the international search report

24 10. 2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Gao, M

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP2004/008205

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>NIRMAIER T ET AL: "Hartmann-Shack sensor ASIC's for real-time adaptive optics in biomedical physics"</p> <p>6TH WORLD MULTICONFERENCE ON SYSTEMICS, CYBERNETICS AND INFORMATICS. PROCEEDINGS INT. INST. INF. & SYST ORLANDO, FL, USA, 'Online!</p> <p>vol. 13, 2002, pages 280-284 vol.1, XP002338274</p> <p>ISBN: 980-07-8150-1</p> <p>Retrieved from the Internet:</p> <p>URL:http://wwwasic.kip.uni-heidelberg.de/wavefront/iii_final.pdf</p> <p>'retrieved on 2005-07-26!</p>	1-9, 13, 37
Y	<p>abstract</p> <p>section II: "An ASIC Concept for Hartmann-Shack Sensors"</p> <p>section III. "ASIC Performance"</p> <p>-----</p>	10-12
Y	<p>HOFFER H ET AL: "DYNAMICS OF THE EYE'S WAVE ABERRATION"</p> <p>JOURNAL OF THE OPTICAL SOCIETY OF AMERICA - A, OPTICAL SOCIETY OF AMERICA, WASHINGTON, US,</p> <p>vol. 18, no. 3, March 2001 (2001-03), pages 497-506, XP002338276</p> <p>ISSN: 1084-7529</p> <p>section 2.B. "Procedure"</p> <p>section 3.B.2. "Eye Movements"</p> <p>-----</p>	10-12
Y	<p>SUNG-HOON BAIK ET AL: "New centroid detection algorithm for the Shack-Hartmann wavefront sensor"</p> <p>PROCEEDINGS OF THE SPIE - THE INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING SPIE-INT. SOC. OPT. ENG USA, vol. 4926, 2002, pages 251-260, XP002348357</p> <p>ISSN: 0277-786X</p> <p>abstract</p> <p>section 2. "Center detection algorithm of Shack-Hartmann wavefront sensor"</p> <p>-----</p> <p>-/--</p>	14-16, 24-26, 33, 36

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/008205

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>PRIETO P M ET AL: "ANALYSIS OF THE PERFORMANCE OF THE HARTMANN-SHACK SENSOR IN THE HUMAN EYE" JOURNAL OF THE OPTICAL SOCIETY OF AMERICA - A, OPTICAL SOCIETY OF AMERICA, WASHINGTON, US, vol. 17, no. 8, August 2000 (2000-08), pages 1388-1398, XP001041251 ISSN: 1084-7529 abstract section 3.C. "Calculation of the Wave Aberration from the Hartmann-Shack Images"</p>	14-16, 24-26, 33,36
A	<p>I. MIRO, N. LOPEZ-GIL, AND P. ARTAL: "Pupil meter and tracking system based in a fast image processing" OPHTHALMIC TECHNOLOGIES IX, 3591, 497-506, 1999, XP008050380 abstract section 3.2 "Eye Tracking"</p>	10-12
A	<p>DROSTE D ET AL: "AN ASIC FOR HARTMANN-SHACK WAVEFRONT DETECTION" IEEE JOURNAL OF SOLID-STATE CIRCUITS, IEEE INC. NEW YORK, US, vol. 37, no. 2, February 2002 (2002-02), pages 173-182, XP001220695 ISSN: 0018-9200 abstract section V.C. "Measurement of Optical Wavefronts"</p>	3,4,7,8
A	<p>SOPHIA I. PANAGOPOULOU; IOANNIS G. PALLIKARIS: "Wavefront Customized Ablations With the WASCA Asclepion Workstation" JOURNAL OF REFRACTIVE SURGERY, 'Online! vol. 17, September 2001 (2001-09), XP002338275 Retrieved from the Internet: URL:http://www.carlomasci.it/biblio/second o%20congresso/wasca.pdf> 'retrieved on 2005-07-26! section "Patients and Methods"</p>	5,6,13

-/--

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/008205

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>LIANG J ET AL: "OBJECTIVE MEASUREMENT OF WAVE ABERRATIONS OF THE HUMAN EYE WITH THE USE OF A HARTMANN-SHACK WAVE-FRONT SENSOR" JOURNAL OF THE OPTICAL SOCIETY OF AMERICA. A, OPTICS AND IMAGE SCIENCE, vol. 11, no. 7, July 1994 (1994-07), pages 1949-1957, XP001182893 ISSN: 0740-3232 abstract section "Test of Wave Aberrations on the Eye" figures 3-7 tables 1-3</p> <p>-----</p>	5-8, 13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2004/008205

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-13 and 37

Influence of eye movements on changes in the wavefront

2. claims: 14-36

Digital centroid detection
